IMPACT OF THE NEW SOVIET AUTOMOBILE PROGRAM

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Summary

The Soviet decision to boost automobile production represents a major step toward bringing the USSR into the automotive age, but present plans are neither so grandiose nor so costly as to require significant alterations in Moscow's other economic and military-space objectives. The impact of the program on the Soviet defense industry will be negligible. The program will undoubtedly generate new investment well beyond that needed for providing the new automobile production capacity, but it seems certain that the Soviet regime does not envision the development of a many-sided motor-oriented society typical of the United States or other advanced Western countries. Thus the Soviet command economy will undoubtedly resist yielding to pressures for a vast array of super highways, gasoline stations, appliance stores, and suburban housing developments.

Direct investments in the Soviet automotive industry to fulfill the program as it appears at present will be on the order of $1.2 billion of which the major portion -- $800 million -- will be used in constructing the Fiat plant. The remainder will be used for reconstructing the Moskvich plant (perhaps by the French Renault firm) and the Gor'kiy plant, for building a new automobile plant in the Soviet city of Izhevsk, and for expanding production of the Zaporozh'ye facility in the Ukraine. It is likely that approximately $900 million of the overall total will be spent within the next five years and the remainder in the 1971-75 period.

Direct investment through 1970, while a large amount in absolute terms, represents less than one-half of one percent of all investment planned for Soviet industry during the next five years and 4 to 5 percent of total investment in machine building for the same period. Furthermore, the favorable financial terms which have been offered to the USSR by Fiat will stretch out the burden and thus considerably soften the effect of the program on other priorities with resource requirements which must be served.

Direct investment in the Fiat plant has been variously cited as ranging from $700 million to $1 billion. Western estimates based on a detailed study of the requirements for such a plant set the figure at $800 million for direct investment. The investment represents only a part of the total which will be required to make the program a success. Additional funds will be needed for expanding the output of steel and tire-making facilities as well as for other support activities directly related

to automobile production. It is estimated that 30,000 to 40,000 additional workers will have to be trained in the next five years. It is difficult to place a dollar price tag on the variety of such activities, but it seems fairly certain that the Soviet automobile industry could increase its demands for support even in excess of what is implied by present plans without causing major alterations in present production trends of the industries affected. Unlike the US motor vehicle industry which used about 20 percent of domestically consumed steel, the Soviet industry in recent years has used less than 4 percent. At a maximum, new investment of about $192 million in cold rolled steel capacity will be needed, while sufficient new tire-making capacity (including supporting facilities) could be provided for an additional $140 million.

The present Soviet plan calls for a production level of 700,000 to 800,000 automobiles to be reached by 1970. Judging from past experiences of Western builders doing business in the USSR, and the rather archaic state of the present Soviet automobile industry, it appears likely that the goal will be underfulfilled by a considerable margin. However, production by 1972 could be 840,000 automobiles, and 1 million could be turned out by 1975.

While this trend will be eagerly applauded by the automobile-hungry Soviet public, demand will still be far from satisfied. Only about 40 percent of all automobiles produced will reach the private sector -- the rest will be exported or transferred to administrative and military use. Second, for a country with as large a population as the USSR, the production of 1 million automobiles is hardly a drop-in-the-bucket. In 1965, there were 4,300 automobiles per million population in the USSR and by 1975 this number should rise to 15,800, in contrast to the United States where in 1964 there were 374,000 per million population. While the 1975 availability estimated for the USSR would be a considerable improvement, it still would place the USSR below the 1964 availability levels in such countries as Spain (20,800) and Italy (90,600).

There would be four times as many automobiles as at present on Soviet roads by 1975 by this estimate, but it is not believed that this will lead to major departures in the present trends in investment in new roads, service stations, and other supporting services. The USSR has concentrated on developing a first-class rail system to fulfill long distance transportation needs. Highway development plans for the next five years call for a fairly modest increase in improved highways, a program which will cost on the order of $8.3 billion. There seems little likelihood that the Soviet

leadership will choose to emulate the US in gasoline stations, although many more service and maintenance facilities will be needed. At present, there are only eight gasoline stations and eight garages in the city of Moscow. However, the Soviet regime will probably choose to increase the number of such facilities at roughly the same rate as in the past. Such a program through 1975 would cost approximately $185 million.

I. Plans and Feasibility

The Soviet five-year plan (1966-70) implies an average annual rate of increase of 28 to 32 percent for automobile* production in contrast to a rate of 7.7 percent achieved over the past five years (1961-65). For the first time, a Soviet plan calls for a greater output of automobiles than trucks.

	1965 Production	1970 Plan (Thousand Units)
Automobiles	201,200	700 to 800
Trucks	379,600	600 to 650
Buses	35,600	60
Total	616,400	1,360 to 1,510

In spite of the major investment that the USSR appears willing to commit to the automobile branch of the motor vehicle industry, it seems unlikely that the 1970 goal of 700,000 to 800,000 automobiles will be reached before 1972 (see Table 1).

The plant to be built in the USSR by the Fiat company will be capable of producing 600,000 automobiles a year when operating at capacity and will be the single most important source of increased automobile production. Other significant output increases could come from the current negotiations with the French automobile firm of Renault to modernize the facilities of the Moskvich automobile plant in Moscow; from a new automobile plant at the city of Izhevsk that is to begin production of the Moskvich 408 later this year and is planned to be producing 100,000 units by 1970; and from the planned 125 million ruble modernization of the Gor'kiy motor vehicle plant.

There are several reasons for estimating that the USSR will not achieve its automobile production goal by 1970. It is well documented that Western builders experience long delays when working in the Soviet bureaucratic and technical environment. The Fiat plant is not expected to be completed until late 1969 and will probably not be producing at

* The term automobile means a passenger car; the term motor vehicles refers to automobiles, trucks, and buses.

capacity until 1974. In addition, the modernization and expansion of present automobile plants and the start of production at Izhevsk is not likely to move with the speed necessary to achieve the 1970 goal -- Soviet planners have always been slow in starting new production. Furthermore, renovation of the Moskvich plant will cause disruptions in production.

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Table 1

Estimated Automobile Production in the USSR *
1966-75

Thousand Units

Model	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Volga	56.0	58.0	60.0	63	66	70	75	80	85	90
Moskvich	81.0	84.0	88.0	90	100	120	140	160	180	200
Zaporozhets	40.6	56.6	66.6	76	84	90	95	100	100	100
Izhevsk	a/	8.0	30.0	50	80	100	100	100	100	100
Fiat	0	0	0	5	100	250	400	500	600	600
GAZ 69	28.0	28.0	28.0	28	28	28	28	28	28	28
Total b/	206.0	234.9	272.9	312	458	658	838	968	1,093	1,118

a. Production in 1966 is estimated at 100 units.
b. Including production of 100 ZIL-111's and 200 Chaika's per year.

* Based on a study of the past performance of the Soviet automobile industry, the current five-year plan for the industry, recent press announcements, and a study of the individual automobile plants.

II. The Automobile in Soviet Society

The USSR has only a toe-hold in the automotive age. Steady increases in Soviet automobile production in the last decade have boosted output to 201,200 units in 1965. Judged in relation to demand and to production in other economically advanced countries, such a level of output can best be described as minuscule. The production and inventory of automobiles in the USSR in comparison to other countries is shown in Table 2.

The present position of the automobile industry in the USSR is clearly the result of calculated neglect by Soviet policy-makers, both under Stalin and later under Khrushchev. Indeed, Khrushchev was fond of pointing out that the mass-production and distribution of automobiles was a "weakness" of capitalism which the USSR had no intention of emulating. Instead, he advocated the establishment of rental-car services in the major cities -- a policy which has worked very poorly.

Khrushchev's attitude undoubtedly stemmed in large part from a conviction that the USSR could not afford to provide its people with automobiles if it were going to meet priority commitments in the development of heavy industry, military weaponry, and space technology. Non-economic explanations for this neglect were probably equally important to Khrushchev, such as the problems of political control and of sociological changes considered anathema to the Marxist view of human and social requirements.

In the light of Khrushchev's dogmatic approach to the problem of automobile production, Kosygin's views appear not so much to portend a "revolution" as to suggest redress of major imbalances in the economy as well as cater to the aspirations of the Soviet upper-middle class consumer. This does not mean a program which will lead to an automobile for every Soviet family. Kosygin's speech to a meeting of the State Planning Committee on 19 March 1965 is the most complete statement thus far issued from Moscow as to the reasons behind the plan to boost automobile production:

> You know how staunchly the idea was imposed that there was no necessity in our country to develop the production of passenger automobiles on a large scale. Let all people ride only in buses, so to speak. Everything has been done to deprive even the leaders of big enterprises and economic organizations of the right to use passenger cars. Is this correct? The result has been that many leaders have been compelled to use trucks unlawfully for their official rides. An apparent saving was made on transport costs, but in fact damage was inflicted on our economy.

The plans thus far released by the Soviet leader appear to confirm the viewpoint implicit in this quotation. It appears that, where in 1965 there were 4, 300 automobiles per million population, there will be 6, 900 by 1970 and 15, 800 by 1975. By contrast, in 1964 the United States enjoyed 374, 000 per million population, France 164, 000, and West Germany 144, 000. Italy, in 1964, with a lower per capita gross national product than some other Western European nations, had a per capita level of more than 20 times the automobiles available in the USSR.

Table 2

World Production and Availability of Automobiles
1964

	Production	Automobiles in Use [a]	Automobiles in Use Per Million Population
Argentina	114,617	800,000	36,400
Australia	340,614	2,599,000	238,000
Belgium	327,899	201,000	21,400
Canada	560,678	5,122,000	265,000
France	1,390,312	7,960,000	164,000
West Germany	2,650,183	8,100,000	144,000
Italy	1,028,930	4,632,000	90,600
Japan	579,660	1,672,000	17,100
South Africa	143,373	1,023,000	58,500
Spain	119,000	652,000	20,800
Sweden	160,106	1,666,000	216,000
United Kingdom	1,867,640	8,436,000	156,000
United States	7,745,492	71,950,000	374,000
USSR	185,200	919,000	4,000

a. Based on automobile registrations except for Soviet data, which are estimated.

III. Automobiles on the Road, 1970, 1975

At present the Soviet inventory of automobiles, publicly and privately owned, is estimated to be slightly more than 1 million cars (see Table 3). By 1970, the inventory is estimated to be 1.7 million. The estimated 1975 inventory of Soviet automobiles -- 4.2 million -- will only be approximately one-half of the automobiles now in the state of California.

Despite the planned increase in the number of automobiles, most Soviet citizens will still not own automobiles. About 40 percent of total production per year will go for official use -- that is, publicly owned cars operated by administrative personnel, factory managers, the military, and taxi services (see Table 4). Approximately one-fifth of the existing inventory is normally out of service, awaiting repairs.

Table 3

Estimated Automobile Inventory in the USSR
1966-75

Thousand Units

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Starting inventory	1,003.8	1,083.6	1,179.3	1,296.6	1,434.9	1,674.5	2,048.9	2,532.0	3,076.5	3,674.0
Production	206.0	234.9	272.9	312.3	458.3	658.3	838.3	968.3	1,093.3	1,118.3
Imports a/	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Exports b/	47.4	54.0	62.8	71.8	105.4	151.4	192.8	222.7	251.5	257.2
Scrappage c/	80.3	86.7	94.3	103.7	114.8	134.0	163.9	202.6	246.1	293.9
Year-end inventory	1,083.6	1,179.3	1,296.6	1,434.9	1,674.5	2,048.9	2,532.0	3,076.5	3,674.0	4,242.7

a. Assuming a constant 1,500 units from the level of 1961-64.
b. Assuming a constant 23 percent of production from the level of 1961-64.
c. Assuming a constant 8 percent of starting inventory.

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Table 4

Number of New Automobiles Available to the Public in the USSR
1966-75

Thousand Units

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Production	206.0	234.9	272.9	312.0	458.0	658.0	838.0	968.0	1,093.0	1,118.0
Exports a/	47.4	54.0	62.8	71.8	105.4	151.4	192.8	222.7	251.5	257.2
Imports b/	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Official and commercial use	76.8	87.6	101.6	116.2	170.1	244.0	310.6	358.6	404.8	414.0
Available to the public c/	83.3	94.8	110.0	125.5	184.0	264.1	336.1	388.2	438.2	448.3

a. Assuming a constant 23 percent of production from the level of 1961-64.
b. Assuming a constant 1,500 units from the level of 1961-64.
c. Assuming a constant 52 percent of the figure arrived at when exports and imports are netted out of production from the five-year average of 1960-64.

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IV. Primary Investment

If the USSR is to reach a production level of 1.1 million automobiles per year by 1975 (see Table 1), an estimated $1.2 billion of new investment in plant buildings, equipment, and direct manufacturing support facilities will be required. The following tabulation presents estimates of the investment needed to modernize and increase the output of the existing plants as well as to build the two new plants proposed by Soviet planners:

Plant	1966 Output (Thousand Units)	1975 Output (Thousand Units)	Investment Required (Thousand US $)
Gor'kiy	56.0	90	44,000
MZMA	81.0	200	179,000
Zaporozh'ye	40.6	100	80,000
Izhevsk (to be built)	0.1	100	133,000
Fiat a/ (to be built)	0	600	800,000
Total			1,236,000

a. Location unknown.

Approximately $900 million of the $1.2 billion total investment will have to be spent prior to 1970 if the production level estimated is to be attained by 1975 -- $900 million is about 0.5 percent of anticipated total USSR investment in industry and 4 to 5 percent of total investment in machine building for the 1966-70 period. The USSR is capable of allocating this small share of total new investment funds to the automobile industry without resorting to major shifts in present investment allocation plans or cutting back on any military or space program. The financial burden on the USSR is eased by the extended repayment terms of the Fiat agreement -- terms of nine years following completion date.

Most of the $1.2 billion total investment needed by 1975 will go into the proposed Fiat plant. A large US automobile producer estimates that the total cost of direct manufacturing equipment and buildings in such a plant would be $522 million. With supporting facilities, the total cost would probably be within the range of $700 million to $800 million estimated by Fiat. Although the details of the project have not yet been

finally settled, a breakdown of estimated costs of the Fiat plant and the degree of Italian, West European, and US participation is shown in the following tabulation in millions of dollars.

Total cost of Fiat plant	800
Buildings (all to be supplied by the USSR)	167
Machinery and equipment	355
Supplied by Fiat from Italian, West European, and US sources	255
Supplied by the USSR	100 b/
Other supporting facilities a/	278
Supplied by Fiat	65
Supplied by the USSR	213
Total to be spent in the USSR	480
Total to be spent outside the USSR	320
Italy (includes $65 million engineering fee)	195 to 235
Other Western Europe	40 to 90
United States	30 to 50 c/

a. Other supporting facilities include costs of external transportation connections; Fiat-supplied training, engineering, plant layout, powerplant; and plants for paint, gaskets, nuts, bolts, radiators, and other assorted hardware.
b. Some commentators have suggested that the USSR, would supply no equipment. However, it is most unlikely that the USSR, with the world's largest machine tool industry would not participate in equipping such a plant.
c. In the absence of an Export-Import Bank loan the Fiat purchases from the United States might be only $20 million.

It should be emphasized that $800 million will not be the total cost to the USSR of a fully operating automobile plant to produce 600,000 cars per year. Training expenses will be considerable for the 30,000 to 40,000

employees needed to operate the facility. Unless the plant is erected in a large city, dwellings, schools, and other facilities will have to be built. In addition, investments will be required in industries supplying raw materials and semimanufactured goods to the automobile industry as well as in the cornucopia of goods and services related to automobile usage.

The details of other Soviet plans to modernize and expand existing plants and to construct other new plants for the automobile industry have not yet been fully disclosed. Renault of France may have signed an agreement to enlarge the dilapidated and outmoded Moskvich plant. Expanding this plant to a capacity of 200,000 automobiles per year would be tantamount to building a new plant and would cost an estimated $180 million. It is possible that Renault would follow its previous practice in dealing with Communist countries and reduce costs by supplying used equipment from its French plants.

In addition, the USSR is preparing to start production of Moskvich automobiles in Izhevsk. This plant will require an additional investment of about $133 million before the proposed capacity of 100,000 units can be reached. The USSR probably will enlarge the Gor'kiy and Zaporozh'ye automobile building facilities by a total of about 94,000 units per year, requiring an additional estimated $124 million in new investment.

V. Secondary Investment

A. Introduction

The production of from 7 million to 9 million automobiles annually in the United States affects virtually every branch of US industry. One out of every seven wage earners in the United States is connected with some phase of the automobile industry. One out of every six businesses in the US is dependent on the manufacture, distribution and servicing, or use of motor vehicles. Ford buys more than $4 billion worth annually of parts, equipment, and service from 25,000 outside suppliers. General Motors depends on approximately 34,000 other firms who supply services and parts. Automobile and truck production in the United States in 1963 accounted for the following shares of various materials:

Material	Motor Vehicle Production (Percent)
Domestically consumed steel	23
Cold rolled sheet and strip	46
Gray iron castings	19
Malleable castings	57
Natural rubber	65
Synthetic rubber	60
Nickel	14
Zinc	35

The automobile "aftermarket" -- fuel, accessories, and the like -- has grown rapidly in the United States and is now almost one-half the value of retail sales of new automobiles, as shown in the following tabulation:

	Million US $
Automobiles	46,000
Tires, battery, and accessories	2,900
Gasoline, repair, and maintenance	20,000
Total	68,900

In the USSR, in contrast, automobile production has little impact on industrial production. In 1959, total motor vehicle production (passenger cars, trucks, and buses) accounted for less than 4 percent of the gross value of the output of ferrous metals. The share of other inputs consumed by the motor vehicle industry is shown in Table 5.

Table 5

Share of Output of Selected Industries Consumed by the Soviet Motor Vehicle Industry
1959

	Percent of Gross Output
Ferrous metals	3.4
Nonferrous metals	3.8
Metal products (nuts, bolts, etc.)	3.8
Glass	1.6
Bearings	11.1
Tools and instruments	1.2
Electro-technical (generators, electric motors, batteries, etc.)	1.0

B. Ferrous Metal Requirements

In view of planned increases in iron and steel production, automobile production will not significantly increase its claim on Soviet ferrous metal output through 1975 (see Table 6). The Soviet metallurgical industry will have some problems, however, in producing steel products in all the required shapes, grades, and other specifications. In particular, the metallurgical industry must supply the automotive industry with such products as cold rolled sheet, bars, pipe and tubing, various shapes or profiles, plates, cold finished bars, and tubes. Soviet interest in a Western-built cold rolled sheet plant probably reflects a desire to provide Soviet automotive plants with high-quality cold rolled sheet produced to meet established Western standards, particularly in view of the use of Western (Fiat and Renault) technology in the manufacture of automobiles.

Table 6

Iron and Steel Requirements for Soviet Automobile Production a/
Compared with Total Availability
1965, 1970, and 1975

	1965		1970		1975	
	Total Output (Million Metric Tons)	Automotive Requirements (Percent)	Total Output (Million Metric Tons)	Automotive Requirements (Percent)	Total Output (Million Metric Tons)	Automotive Requirements (Percent)
Castings	16.5	0.2	23.7	0.5	31.1	0.8
Gray iron, Malleable	12.6	0.2	17.4	0.4	22.3	0.8
Steel	3.9	0.02	6.3	0.03	8.8	0.05
Rolled steel	70.9	0.3	95.0 to 99.0	0.5	124.0	0.9
Cold rolled sheet	3.6	3.3	7.2	4.5	12.0	6.7

a. Excluding spare parts production.

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C. Machine Tools

Specialized machine tools, transfer lines, and other highly mechanized equipment form a major share of the value of investment in automobile plants. Traditionally, automobile builders the world over have demanded advanced technology, high productivity, and the utmost in dependability in their manufacturing equipment. The US automobile industry has been a powerful stimulus in pushing the US machine tool industry to a position of world leadership in meeting these demands. Nearly 8 percent of the total US machine tool inventory is engaged in motor vehicle manufacturing -- in value terms, this share is far greater.

The automobile industry's requirement for dependable and specialized machinery is a key reason why the USSR turned to the Industrial West to equip its new plant. Soviet machine tool builders traditionally have emphasized high volume and long production runs of average quality, general-purpose machine tools. Throughout Soviet industry these general-purpose machines are substituted for more expensive specialized machines. Consequently, the USSR has inadequate capacity for manufacturing machine tools relative to the greatly increasing demand for complex, specialized, and highly precise machine tools.

Nevertheless, the USSR is capable of producing good-quality specialized machine tools. In 1962, when US firms were denied export licenses to ship automotive machine tools to the USSR, the Soviet machine tool builders demonstrated their ability to produce much of the necessary equipment themselves in time. Although emphasis will continue to be on foreign purchases, in the 1966-70 period, the USSR can be expected to produce domestically most of the required equipment of a nonspecialized nature for their expanding automobile industry.

D. Tires

The new five-year plan for tire production in the USSR calls for an increase in production in five years roughly equivalent to the increase achieved in the seven-year period 1959-65. Total output of tires, 26.4 million in 1965, is scheduled to rise to between 38 million and 40 million by 1970. The present goal for 1970 is substantially below the 44 million tires planned for 1970 under an earlier Khrushchev program. If it is assumed that automobile tires will account for a growing percentage of total tire output, the estimated production for 1965-70 is as follows:

	Million Units
1960	2.2
1965	3.7
1970	7.0

At least four new Soviet tire plants are to be built in 1966-70 and a number of existing plants expanded. Capacities of the new plants will be on the order of 2 million to 3 million tires each, although at least some of these plants will not reach full operations until after 1970.

The increase in tire plant capacity will cost about $40 million. Additional supporting investment in carbon black, tire cord, and synthetic rubber production could boost total investment an additional $100 million for the period 1966-70.

VI. Tertiary Investment

A. The Experience of the United States and Western Europe

1. The United States

The Soviet planner, even though intellectually committed to increasing the importance of the automobile in the USSR, must look with considerable trepidation at data which shows how the US economy was revamped by the mass-automobile age. After the United States took to wheels, there was a vast inner migration which led to modern multilaned highways, vast suburbs, and more and more consumer durables. To support 82 million motor vehicles (69 million passenger cars and 13 million trucks and buses) there were in the United States in 1963 the following facilities:

	Number	Sales (Billion US $)
Automotive wholesalers	22,883	6.7
Franchised car dealers	33,349	37.4
Automotive repair	114,459	3.6
Gasoline service stations	211,473	17.7

Highway production in the United States has long received an impetus from the growing requirements for both passenger and freight traffic. The early urban car owner in the United States was anxious to get out into the countryside. The farmer pressed for rural farm-to-market roads. As early as 1926 there were 19 million automobiles in the United States. By 1930 there were almost 23 million automobiles, and 690,000 miles of paved highways. Today, more than 2.2 million miles of US highways are paved.

2. Western Europe

Since 1950 the annual output of automobiles in Western Europe has risen from 1.1 million to about 5.5 million in 1962. Furthermore, the stock of automobiles has risen from about 6 million in 1950 to almost 30 million in 1962. Increases in the number of automobiles during this period have exceeded by far the growth rates of both GNP and industrial production of Western Europe. For example,

from 1950 to 1960 the stock of automobiles increased by 268 percent whereas GNP during this period rose by 58 percent. Moreover, in 1950 there were about 22,000 cars for every 1 million inhabitants, whereas in 1962 there were 94,000 cars for every 1 million West Europeans.

In 1960 there were more than 2 million miles of surfaced roads, which represented an expenditure of well over $4 billion. But the present system of roads, which consists of very few superhighways, is considered to be inadequate for the amount of traffic it must bear. It is estimated that by 1970 there will be more than 40 million automobiles requiring total expenditures on highways and roads of an estimated $7 billion.

B. USSR

1. Introduction

In the foreseeable future the USSR will almost certainly not duplicate the resource allocation pattern that has been fostered by the automobile in Western Europe and the United States (see the chart). Plans thus far released for the period through 1970 indicate that Moscow has felt under no compulsion to accelerate such construction. Soviet planners have long believed that a well-developed railroad system best suited the USSR's needs for hauling freight. Almost all large industrial plants in the USSR are served by railroad sidings which provide door-to-door rail service. Trucks have been used in the USSR primarily for short-haul intracity shipments, and no change in this pattern is discernible.

2. Highways

As a result of the emphasis on railroads and the vast size of the country, only a rudimentary highway network exists in the USSR. In 1964 there were 832,000 miles of roads in the USSR but only about 218,000 miles, or about 25 percent, was surfaced in any way, and only 73,500 miles, about 9 percent, was paved with concrete or asphalt. The length of paved roads in the USSR about equals the paved highways systems in the states of either California, Kansas, or Michigan. The historic backwardness of the Soviet highway system is illustrated in Table 7, which compares Soviet and US highway mileage for selected years.

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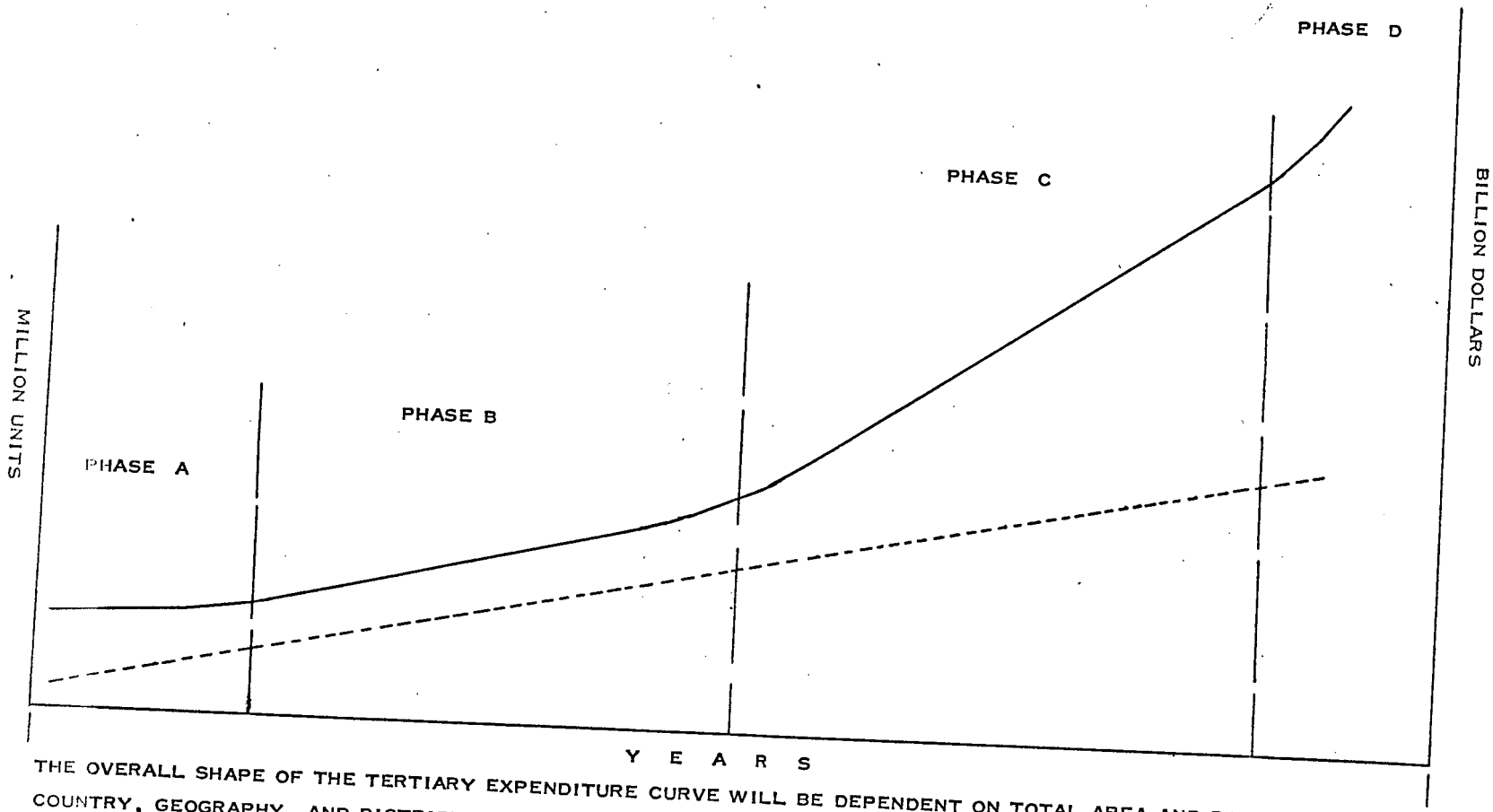
HYPOTHETICAL RELATIONSHIP BETWEEN STOCK OF AUTOMOBILES AND SUPPORTING TERTIARY INVESTMENT



THE OVERALL SHAPE OF THE TERTIARY EXPENDITURE CURVE WILL BE DEPENDENT ON TOTAL AREA AND POPULATION OF COUNTRY, GEOGRAPHY, AND DISTRIBUTION OF AUTOMOBILES BETWEEN RURAL AND URBAN OWNERSHIP. PRESENT SOVIET PLANS STILL PLACE THE USSR WITHIN PHASE A. WESTERN EUROPE IS WITHIN PHASE B; THE US AS A WHOLE IS WITHIN PHASE C, BUT PARTS OF THE EAST COAST OF THE US ARE WITHIN PHASE D.

PHASE A: URBAN: AUTOMOBILES USE EXISTING URBAN STREETS OR LIMITED NUMBER OF INTER-REGIONAL HIGHWAYS.

PHASE B: INTER-CITY: THE PERIOD OF THE TWO-LANE ROAD, GRADE-CROSSINGS. TERTIARY INVESTMENT INCREASES AT ABOUT THE SAME RATE AS STOCK OF AUTOMOBILES.

PHASE C: CONGESTION: SUPERHIGHWAYS, CLOVERLEAFS, GARAGES, AND RELATIVELY MORE SERVICE AND GAS STATIONS ACCELERATE TERTIARY INVESTMENT REQUIREMENTS.

PHASE D: SATURATION: REBUILDING CITIES, INNER AND OUTER LOOPS, AND UNDERGROUND PARKING.

Table 7

Comparison of Length of Surfaced Highways in the United States and the USSR Selected Years, 1930-63

Thousand Miles

	USSR a/		US b/
	All-Surfaced	Paved	Surfaced
1930	27 c/	0.3 c/	690
1940	89	4	1,340
1950	110	11	1,680
1960	168	47	2,160
1963	205	66	2,250

a. Public roads under jurisdiction of highway departments. All-surfaced roads include both gravel-surfaced and paved. Paved roads include only those surfaced by Portland cement, concrete, bituminous concrete, or bituminous macadam.
b. Including surfaced rural roads, including state and county roads.
c. 1932.

During the five-year period 1960-64, paved roads in the USSR increased by only 32,850 miles and no dramatic changes are expected in the development of the Soviet highway network during 1966-70. The new five-year plan, 1966-70, calls for the construction of 39,100 miles of concrete and bituminous roads, an increase of 21 percent over the length of roads constructed in the preceding five-year period. There will be some increased emphasis on construction and reconstruction of badly needed rural (farm-to-market and rail-head roads). Some important intercity highways will be completed or improved during 1966-70, including highways connecting Moscow-Bryansk-Kiev, Moscow-Tambov-Volgograd, and Moscow-Kuybyshev-Ufa. Most of Central Siberia and the Far East, except for short stretches in the vicinity of major population centers, will remain completely without a system of paved roads.

The estimated cost of the Soviet road building program, 1966-1970, is as follows:

Type of Roads to be Constructed	Cost (Billion US $)
Paved	5.5
Other hard surfaced	2.8
Total	8.3

By contrast, highway construction contracts awarded in the United States for the five-year period 1960-64 totaled $24.7 billion.

3. Service Stations and Garages

In Moscow in 1962 there were eight gas stations and eight garages, only three of which serviced all makes of Soviet automobiles. In Leningrad there were three gas stations and only one garage. Outside the major cities, service stations and garages are even harder to find, as shown in the tabulation below:

Route	Distance (miles)	Gas Stations	Garages
Moscow-Minsk	438	5	1
Moscow-Leningrad	450	5	2
Moscow-Khar'kov	456	7	2
Moscow-Gor'kiy	618	3	0
Khar'kov-Kiev	297	3	1
Moscow-Kalinin	100	0	0

The 211,000 gas stations in the United States do perform necessary economic functions, especially with respect to maintenance and repair. In contrast, the total number of stations in the USSR in 1963 was 1,500 to 1,600. If the present ratio of automobiles to filling stations is maintained, during 1966-75 the USSR would have to build additional filling stations* as indicated in the following tabulation:

* Estimated from the ratio of automobiles in use (844,100) to service stations (1,500 to 1,600) in 1963.

	Number	Thousand US $ Equipment Cost	Thousand US $ Total Cost
1966-70	1,300	6,500	22,100
1971-75	5,150	25,750	87,550
Total	6,450	32,250	109,650

The USSR has not announced any plans for expanding repair facilities, but some indication that the plans are quite modest in scope was suggested by a recent news item in a Moscow newspaper which said that during the next five years two service facilities, each capable of handling 12,000 vehicles annually, will be built. In addition an unspecified number of other repair facilities will be built with a total capacity of only 72,000 vehicles annually. The following tabulation gives estimates of the additional number of garages likely to be built in the next 10 years:*

	Number	Thousand US $ Equipment Cost	Thousand US $ Total Cost
1966-70	430	4,300	15,050
1971-75	1,715	17,150	60,025
Total	2,145	21,450	75,075

* Estimated from the ratio of garages to service stations in the USSR in 1962 -- 1:3.

DISSEMINATION 4-1

TRANSMITTAL SLIP	DATE 10 June 1966

TO: OD/ORR File

ROOM NO.	BUILDING

25X1

REMARKS: D/ORR sent copy to ODDI ( ), Ch/SR/DDP, and Toon, EUR/SOV/State with following note:

The attached paper is in response to a request of the SIG (I gather Rostow raised the issue) at its meeting of 31 May 1966. The minutes of this meeting state in item g., "As of further assistance to these presentations, CIA, in collaboration with the Assistant Secretary of State for Economic Affairs (Tony Solomon), will prepare a study of US and certain Western European countries for the purpose of showing a curve of investments accompanying or following a sharp rise in automobile production and the resource implications thereof."

FROM: D/ORR

ROOM NO.	BUILDING
4-F-18	Hq.

25X1

FORM NO 241 1 FEB 55 REPLACES FORM 36-8 WHICH MAY BE USED. ☆ GPO : 1957—O—439445 (47)